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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CHOW, LIXI

ART UNIT

PAPER NUMBER

2627

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/806,318

Applicant(s)

AHN ET AL.

Examiner

Lixi Chow

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

1. Claims 1-20 are pending in this application.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/26/06 has been entered.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 10/806107. Although the conflicting claims are not identical, they are not patentably distinct from each other because both set of claims contain recording of recording pattern having multi-pulse and recording of erase patter having multi-pulse. Even though claim 1 and/or claim 4 in Application No. 10/806107 does not recite recording pattern and an erase pattern being alternatively and sequentially formed on the optical recording medium in response

to input data having a first level and second level; however, claim 1 of Application No. 10/806107 does recite the forming of recording mark or space on the optical recording medium in response to the recording waveform. Hence, mark and space are inherently formed alternatively and sequentially on the optical recording medium in response to the different level of input data. Also, claims in Application No. 10/806107 does not recite the exact phrase of “cooling pulse as a portion of the first multi-pulse and another portion of the second multi-pulse”; nevertheless, Application No. 10/806107 does recite “the cooling pulse concatenating the recording and erase pattern”, wherein the recording pattern corresponds to the first multi-pulse and erase pattern corresponds to the second multi-pulse. Furthermore, the recording pattern to record mark would have different amplitude in comparison to the amplitude corresponds to the erase pattern, so mark or space can be form on the optical recording medium.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-6 and 8-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 5, 19, and 20, each recite in part, “...a power level of a pulse between an end point of the erase pattern and a start point of a leading one of the first pulses of the recording pattern...”; however, it is ambiguous as to whether such pulse can exist. Essentially, the end point of the erase pattern is the beginning point of the recording pattern. In

contrast, Applicant does in fact disclose a time period (Tsfp) from a point where the NRZI data is transited from a low level to high level at the point when the first pulse constituting the recording pattern starts. However, as indicated in the Applicant's disclosure, Tsfp is a period, not a pulse. Therefore, the subject matter in claims 1, 5, 19 and 20 is indefinite. Furthermore, claim 15 recites, "the another recording pattern further comprises a recording pulse having a recording power greater than the power of a first one of the pulses of the another recording pattern". However, Applicant does not show such configuration of recording power. Instead, Applicant does show a recording pulse of the recording pattern having recording power greater than the power of the first portion of the leading pulse of the recording pattern". Therefore, it is not clear as to whether the "first one of the pulses of the another recording pattern" is intended to mean "first portion of the leading pulse of the another recording pattern".

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-5, 7, 9, 11, 12 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Dekker (US Pub. No. 2002/0003762).

Regarding claim 1:

Dekker discloses an apparatus (Fig. 3) for forming a recording pattern and an erase pattern alternatively and sequentially on an optical recording medium in response to input data having a first level and a second level (see Fig. 1A), respectively, in an optical recording apparatus, comprising:

a recording waveform generating unit (Fig. 3, element 63) generating a recording waveform which includes a first multi-pulse having a plurality of first pulses to form the recording pattern in response to the first level of the input data and a second multi-pulse having a plurality of second pulse to form the erase pattern in response to the second level of the input data (see Fig. 1A), wherein a power level of a leading one of the second pulses of the erase pattern is a low level of the second multi-pulse and a power level of a pulse/period between an end point of the erase pattern and a start point of a leading one of the first pulses of the recording pattern is a high level of the second multi-pulse(see Fig. 1A; the leading pulse of the erase pattern is the end point of the period 11, which has a low power level; the pulse/period between the end point of the period 12 and the start point of the leading pulse of the recording pattern is at power level P1, which has a high power level compare to the leading pulse of the erase pattern).

Regarding claim 2:

Dekker discloses the apparatus, wherein the recording waveform generating unit generates a cooling pulse as a portion of the first multi-pulse and another portion of the second multi-pulse (see Fig. 1A).

Regarding claim 3:

Dekker discloses the apparatus, wherein the first pulses of the first multi-pulse each having a first duty cycle and a first amplitude, and the second pulses of the second multi-pulse

each having a second duty cycle different from the first duty cycle and a second amplitude different from the first amplitude (see Figs. 1A-1C and paragraph [0015]-[0017]).

Regarding claim 4:

Dekker discloses the apparatus, further comprising:

a pickup unit (see Fig. 3, elements 31-33) forming a mark corresponding to the recording pattern on the optical disc in response to the first pulses of the first multi-pulse and erasing another mark to form a space corresponding to the erase pattern on the optical disc in response to the second pulses of the second multi-pulse (see paragraphs [0002] and [0028]).

Regarding claim 5:

Claim 5 recites similar limitations as claim 1. In addition, Dekker also discloses a cooling pulse concatenating the recording and erase patterns (see Fig. 1A). Therefore, claim 5 is rejected under the same reasons set forth in claim 1.

Regarding claim 7:

Dekker discloses an apparatus (Fig. 3) for forming a recording pattern and an erase pattern alternatively and sequentially on an optical recording medium in response to input data having a first level and a second level (see Fig. 1A), respectively, in an optical recording apparatus, comprising:

a recording waveform generating unit (Fig. 3, element 63) which receives the input data and generates a recording waveform which includes a first multi-pulse having a plurality of first pulses to form the recording pattern in response to the first level of the input data and a second multi-pulse having a plurality of second pulses having corresponding high and low power levels to form the erase pattern in response to the second level of the input data (see Fig. 1A; the erase

pulses 14 corresponds to the second pulses), a first one of the second pulses for the erase pattern being at the low level (the leading portion of the second pulses is at low power level); and a pickup (Fig. 3, elements 31-33) forming a mark or a space by using the generated recording and erasing waveform.

Regarding claim 9:

Dekker discloses the apparatus, wherein the recording waveform comprises another recording pattern formed of another multi-pulse, and the recording waveform generating unit adjusts a first one of the multi-pulses of the another recording pattern to have a power that is other than or equal to a power of the first one of the multi-pulses of the erase pattern (see Fig. 1A; it is inherent that the waveform of Dekker includes another recording pattern having another multi-pulses; the first one of the another multi-pulses of the recording pattern has a P1 power level, which is a power that is other than a power of the first one of the multi-pulses of the erase pattern, which is below P1).

Regarding claim 11:

Dekker discloses the apparatus, wherein the power of the first one of the multi-pulses of the erase pattern is other than the power of the first one of the multi-pulses of the another recording pattern (see Fig. 1A and explanation in claim 9).

Regarding claim 12:

Dekker discloses the apparatus, wherein the multi-pulse of the erase pattern has a first pulse power and a second pulse power greater than the first pulse power (see Fig. 1A, first pulse power is P1 and second pulse power is Pe).

Regarding claim 14:

Dekker discloses the apparatus, wherein the multi-pulse of the erase pattern has a first pulse power and a second pulse power greater than the first pulse power, and the power of the first one of the another multi-pulses of the recording pattern is equal to the first pulse power (see Fig. 1A first pulse power is P_1 , second pulse power is P_e and power of the first one of the another multi-pulses of the recording pattern is P_1).

9. Claim 19 is rejected under 35 U.S.C. 102(e) as being anticipated by Ichihara (US 6,396,792).

Regarding claim 19:

Ichihara discloses an apparatus (Fig. 5) for forming a recording pattern and an erase pattern alternatively and sequentially on an optical recording medium in response to input data having a first level and a second level (see Fig. 1B), respectively, in an optical recording apparatus, comprising:

a recording waveform generating unit (Fig. 5, element 26) generating a recording waveform which includes a first multi-pulse having a plurality of first pulses to form the recording pattern in response to the first level of the input data, and a second multi-pulse having a plurality of second pulse to form the erase pattern in response to the second level of the input data (see Fig. 1B), and having a power level of a leading one of the second pulses of the erase pattern set to be a high level of the second multi-pulse and a power level of a pulse/period between an end point of the erase pattern and a start point of a leading one of the first pulses of the recording pattern is set to be a high level of the second multi-pulse(see Fig. 1B; the leading pulse of the erase pattern has power level of P_{c1} (high level), and pulse/period between the end

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point of the erase pattern and the start point of the leading pulse of the recording pattern has a power level between P_{c1} and P_{c2} , which is also a high level).

10. Claim 20 is rejected under 35 U.S.C. 102(b) as being anticipated by Ohno et al. (US 5,150,351; hereafter Ohno).

Regarding claim 20:

Ohno discloses an apparatus (Fig. 6) for forming a recording pattern and an erase pattern alternatively and sequentially on an optical recording medium in response to input data having a first level and a second level (see Fig. 4(b)), respectively, in an optical recording apparatus, comprising:

a recording waveform generating unit (Fig. 6, element 8) generating a recording waveform which includes a first multi-pulse having a plurality of first pulses to form the recording pattern in response to the first level of the input data, and a second multi-pulse having a plurality of second pulse to form the erase pattern in response to the second level of the input data (see Fig. 4(b)), wherein a power level of a leading one of the second pulses of the erase pattern set to be a low level of the second multi-pulse and a power level of a pulse/period between an end point of the erase pattern and a start point of a leading one of the first pulses of the recording pattern is set to be a low level of the second multi-pulse (see Fig. 4(b); the leading one of the second pulses of the erase pattern and the pulse/period between the end point of the erase pattern and a start point of a leading one of the first pulses of the recording pattern are both set at low level, which is at power level P_r).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dekker in view of Clark et al. (US 5,802,031; hereafter Clark). For a description of Dekker, see the rejection of paragraph 8, above.

Regarding claim 8:

Dekker does not disclose the data recorded using the waveform modulated according to a Run Length Limited (RLL) (1,7). However, Clark discloses the recording of data using the waveform modulated according to a Run Length Limited (RLL) (1,7) (see Clark, col. 6, lines 51-59).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have adopted the method of recording data according to a Run Length Limited (RLL) (1,7) in the apparatus of Dekker as taught by Clark. One of ordinary skill in the art would have been motivated to do this, because recording of marks and spaces of length 2T to 8T for standard M-O recording system is possible (see Clark, col. 6, lines 51-59). Hence, recording of marks or spaces amongst different types of recording format can be achieved.

Response to Arguments

13. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. No comments will be made in this Office Action regarding the allowability of claims 6, 10, 13 and 15-18 due to the rejection under the 35 U.S.C 112, 2nd paragraph.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lixi Chow whose telephone number is 571-272-7571. The examiner can normally be reached on Mon-Fri, 8:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. L. Wellington can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LC 7/8/06


ANDREA WELLINGTON
SUPERVISORY PATENT EXAMINER